# The Evening Sky Map

FREE* EACH MONTH FOR YOU TO EXPLORE, LEARN & ENJOY THE NIGHT SKY

WWW.SKYMAPS.COM

## NORTHERN HEMISPHERE MAY 2013

## Sky Calendar – May 2013

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2 **Last Quarter Moon** at 11:16 UT.

6 **Eta Aquarid meteor shower peaks** at 1h UT. Active from April 19 to May 28. Associated with Comet Halley. Very fast, bright meteors, up to 30 per hour. Favors skywatchers in the tropics and southern hemisphere observing a few hours before dawn.

9 **Venus 4.1° SSE of Pleiades** (11° from Sun, evening sky) at 21h UT.

10 **New Moon** at 0:31 UT. Start of lunation 1118.

10 **Annular Solar Eclipse** from 21:25 (9 May) to 3:25 UT, greatest eclipse at 0:26 UT. Path of annularity from N Australia out across the Pacific. Partial eclipse in Australia, New Zealand and much of the Pacific.

11 **Moon near Venus and Pleiades** (11° from Sun, evening sky) at 0h UT. Mag. –3.9.

11 **Moon near Aldebaran** (evening sky) at 20h UT.

11 **Mercury at superior conjunction** with the Sun at 21h UT. The planet passes into the evening sky.

12 **Moon near Jupiter** (evening sky) at 14h UT.

13 **Moon at apogee** (farthest from Earth) at 14h UT (distance 405,825 km; angular size 29.4').

16 **Moon near Beehive cluster** (evening sky) at 14h UT.

18 **First Quarter Moon** at 4:35 UT.

22 **Moon very near Spica** (142° from Sun, evening sky) at 10h UT. Occultation from NE Australia & Indonesia.

23 **Moon near Saturn** (midnight sky) at 6h UT. Mag. +0.3.

24 **Mercury 1.4° N of Venus** (15° from Sun, evening sky) at 21h UT. Mags. –1.0 and –3.9. Jupiter nearby at –1.9.

25 **Full Moon** at 4:26 UT.

25 **Penumbral Eclipse of the Moon** from 3:53 to 4:27 UT. Only a very tiny portion of the Moon will dip into Earth's penumbral shadow at maximum eclipse. Not observable.

25 **Moon near Antares** (midnight sky) at 13h UT.

26 **Moon at perigee** (closest to Earth) at 2h UT (358,377 km; 33.3').

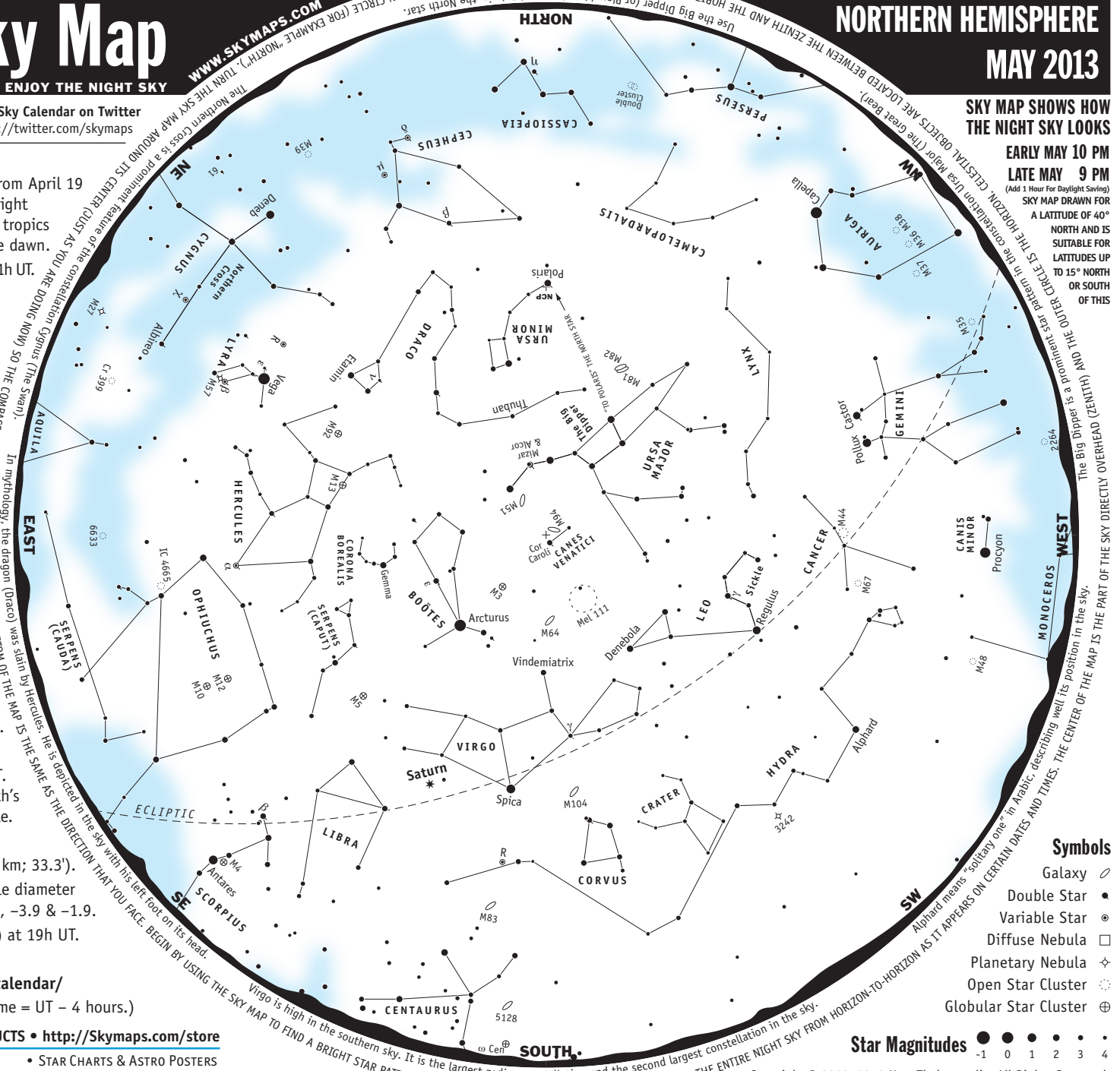
27 **Mercury, Venus and Jupiter** form triangle within circle diameter 2.4° (17° from Sun, evening sky) at 8h UT. Mags. –0.7, –3.9 & –1.9.

28 **Venus 1.0° N of Jupiter** (16° from Sun, evening sky) at 19h UT.

31 **Last Quarter Moon** at 18:59 UT.

**More sky events and links at http://Skymaps.com/skycalendar/**

All times in Universal Time (UT). (USA Eastern Summer Time = UT – 4 hours.)




## SKY MAP SHOWS HOW THE NIGHT SKY LOOKS

EARLY MAY 10 PM
LATE MAY 9 PM
(Add 1 Hour For Daylight Saving)

SKY MAP DRAWN FOR A LATITUDE OF 40° NORTH AND IS SUITABLE FOR LATITUDES UP TO 15° NORTH OR SOUTH OF THIS

The Big Dipper is a prominent star pattern in the constellation Ursa Major (The Great Bear). CELESTIAL OBJECTS ARE LOCATED BETWEEN THE ZENITH AND THE HORIZON. COMPASS DIRECTIONS ARE INDICATED ALONG THE HORIZON CIRCLE (FOR EXAMPLE "NORTH"). TURN THE SKY MAP AROUND ITS CENTER (JUST AS YOU ARE DOING NOW) SO THE COMPASS DIRECTION THAT APPEARS ALONG THE BOTTOM OF THE MAP IS THE SAME AS THE DIRECTION THAT YOU FACE. BEGIN BY USING THE SKY MAP TO FIND A BRIGHT STAR PATTERN IN THE SKY.

**INSTRUCTIONS:** THE SKY MAP SHOWS THE ENTIRE NIGHT SKY FROM HORIZON-TO-HORIZON AS IT APPEARS ON CERTAIN DATES AND TIMES. THE CENTER OF THE MAP IS THE PART OF THE SKY DIRECTLY OVERHEAD (ZENITH) AND THE OUTER CIRCLE IS THE HORIZON.

### Symbols

Galaxy
Double Star
Variable Star
Diffuse Nebula
Planetary Nebula
Open Star Cluster
Globular Star Cluster

**Star Magnitudes** -1 0 1 2 3 4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All sales support the production and free distribution of The Evening Sky Map.


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## About the Celestial Objects

Listed on this page are several of the brighter, more interesting celestial objects visible in the evening sky this month (refer to the monthly sky map). The objects are grouped into three categories. Those that can be easily seen with the naked eye (that is, without optical aid), those easily seen with binoculars, and those requiring a telescope to be appreciated. **Note, all of the objects (except single stars) will appear more impressive when viewed through a telescope or very large binoculars.** They are grouped in this way to highlight objects that can be seen using the optical equipment that may be available to the star gazer.

## Tips for Observing the Night Sky

When observing the night sky, and in particular deep-sky objects such as star clusters, nebulae, and galaxies, it's always best to observe from a dark location. Avoid direct light from street lights and other sources. If possible observe from a dark location away from the light pollution that surrounds many of today's large cities.

You will see more stars after your eyes adapt to the darkness—usually about 10 to 20 minutes after you go outside. Also, if you need to use a torch to view the sky map, cover the light bulb with red cellophane. This will preserve your dark vision.

Finally, even though the Moon is one of the most stunning objects to view through a telescope, its light is so bright that it brightens the sky and makes many of the fainter objects very difficult to see. So try to observe the evening sky on moonless nights around either New Moon or Last Quarter.

## Astronomical Glossary

**Conjunction** – An alignment of two celestial bodies such that they present the least angular separation as viewed from Earth.

**Constellation** – A defined area of the sky containing a star pattern.

**Diffuse Nebula** – A cloud of gas illuminated by nearby stars.

**Double Star** – Two stars that appear close to each other in the sky; either linked by gravity so that they orbit each other (binary star) or lying at different distances from Earth (optical double). Apparent separation of stars is given in seconds of arc (").

**Ecliptic** – The path of the Sun's center on the celestial sphere as seen from Earth.

**Elongation** – The angular separation of two celestial bodies. For Mercury and Venus the greatest elongation occurs when they are at their most angular distance from the Sun as viewed from Earth.

**Galaxy** – A mass of up to several billion stars held together by gravity.

**Globular Star Cluster** – A ball-shaped group of several thousand old stars.

**Light Year (ly)** – The distance a beam of light travels at 300,000 km/sec in one year.

**Magnitude** – The brightness of a celestial object as it appears in the sky.

**Open Star Cluster** – A group of tens or hundreds of relatively young stars.

**Opposition** – When a celestial body is opposite the Sun in the sky.

**Planetary Nebula** – The remnants of a shell of gas blown off by a star.

**Universal Time (UT)** – A time system used by astronomers. Also known as Greenwich Mean Time. USA Eastern Standard Time (for example, New York) is 5 hours behind UT.

**Variable Star** – A star that changes brightness over a period of time.

NORTHERN HEMISPHERE MAY 2013

# CELESTIAL OBJECTS

Skymaps.com

## Easily Seen with the Naked Eye

| | | | |
|---|---|---|---|
| Capella | Aur | ● | The 6th brightest star. Appears yellowish in color. Spectroscopic binary. Dist=42 ly. |
| Arcturus | Boo | ● | Orange, giant K star. Name means "bear watcher". Dist=36.7 ly. |
| Procyon | CMi | ● | Greek name meaning "before the dog" - rises before Sirius (northern latitudes). Dist=11.4 ly. |
| δ Cephei | Cep | ◉ | Cepheid prototype. Mag varies between 3.5 & 4.4 over 5.366 days. Mag 6 companion. |
| Deneb | Cyg | ● | Brightest star in Cygnus. One of the greatest known supergiants. Dist=1,400±200 ly. |
| Castor | Gem | ◍ | Multiple star system with 6 components. 3 stars visible in telescope. Dist=52 ly. |
| Pollux | Gem | ● | With Castor, the twin sons of Leda in classical mythology. Dist=34 ly. |
| α Herculis | Her | ◉ | Semi-regular variable. Magnitude varies between 3.1 & 3.9 over 90 days. Mag 5.4 companion. |
| Regulus | Leo | ● | Brightest star in Leo. A blue-white star with at least 1 companion. Dist=77 ly. |
| Vega | Lyr | ● | The 5th brightest star in the sky. A blue-white star. Dist=25.0 ly. |
| Antares | Sco | ● | Red, supergiant star. Name means "rival of Mars". Dist=135.9 ly. |
| Polaris | UMi | ◍ | The North Pole Star. A telescope reveals an unrelated mag 8 companion star. Dist=433 ly. |
| Spica | Vir | ● | Latin name means "ear of wheat" and shown held in Virgo's left hand. Dist=250 ly. |

## Easily Seen with Binoculars

| | | | |
|---|---|---|---|
| M44 | Cnc | ⁘ | Praesepe or Beehive Cluster. Visible to the naked eye. Dist=590±20 ly. |
| M3 | CVn | ⊕ | Easy to find in binoculars. Might be glimpsed with the naked eye. |
| μ Cephei | Cep | ◉ | Herschel's Garnet Star. One of the reddest stars. Mag 3.4 to 5.1 over 730 days. |
| Mel 111 | Com | ⁘ | Coma Berenices. 80 mag 5-6 stars in 5 deg. Dist=283 ly. Age=400 million years. |
| χ Cygni | Cyg | ◉ | Long period pulsating red giant. Magnitude varies between 3.3 & 14.2 over 407 days. |
| M39 | Cyg | ⁘ | May be visible to the naked eye under good conditions. Dist=900 ly. |
| ν Draconis | Dra | ◍ | Wide pair of white stars. One of the finest binocular pairs in the sky. Dist=100 ly. |
| M13 | Her | ⊕ | Best globular in northern skies. Discovered by Halley in 1714. Dist=23,000 ly. |
| M92 | Her | ⊕ | Fainter and smaller than M13. Use a telescope to resolve its stars. |
| R Hydrae | Hya | ◉ | Long period variable. Mag varies between 3.0 & 11.0 over 390 days. Brilliant red. |
| ε Lyrae | Lyr | ◍ | Famous Double Double. Binoculars show a double star. High power reveals each a double. |
| R Lyrae | Lyr | ◉ | Semi-regular variable. Magnitude varies between 3.9 & 5.0 over 46.0 days. |
| M12 | Oph | ⊕ | Close to the brighter M10. Dist=18,000 ly. |
| M10 | Oph | ⊕ | 3 degrees from the fainter M12. Both may be glimpsed in binoculars. Dist=14,000 ly. |
| IC 4665 | Oph | ⁘ | Large, scattered open cluster. Visible with binoculars. |
| 6633 | Oph | ⁘ | Scattered open cluster. Visible with binoculars. |
| M4 | Sco | ⊕ | A close globular. May just be visible without optical aid. Dist=7,000 ly. |
| M5 | Ser | ⊕ | Fine globular star cluster. Telescope will reveal individual stars. Dist=25,000 ly. |
| Mizar & Alcor | UMa | ◍ | Good eyesight or binoculars reveals 2 stars. Not a binary. Mizar has a mag 4 companion. |
| Cr 399 | Vul | ⁘ | Coathanger asterism or "Brocchi's Cluster". Not a true star cluster. Dist=218 to 1,140 ly. |

## Telescopic Objects

| | | | |
|---|---|---|---|
| ε Boötis | Boo | ◍ | Red giant star (mag 2.5) with a blue-green mag 4.9 companion. Sep=2.8". Difficult to split. |
| M67 | Cnc | ⁘ | Contains 500+ stars mag 10 & fainter. One of the oldest clusters. Dist=2,350 ly. |
| M94 | CVn | ⌀ | Compact nearly face-on spiral galaxy. Dist=15 million ly. |
| η Cassiopeiae | Cas | ◍ | Yellow star mag 3.4 & orange star mag 7.5. Dist=19 ly. Orbit=480 years. Sep=12". |
| 5128 | Cen | ⌀ | Bisected by a wide obscuring lane. Strong radio source. Dist=14 million ly. |
| M51 | CVn | ⌀ | Whirlpool Galaxy. First recognised to have spiral structure. Dist=25 million ly. |
| M64 | Com | ⌀ | Black-Eye Galaxy. Discovered by J.E. Bode in 1775 - "a small, nebulous star". |
| Albireo | Cyg | ◍ | Beautiful double star. Contrasting colours of orange and blue-green. Sep=34.4". |
| 61 Cygni | Cyg | ◍ | Attractive double star. Mags 5.2 & 6.1 orange dwarfs. Dist=11.4 ly. Sep=28.4". |
| 3242 | Hya | ✧ | Ghost of Jupiter. Bright blue disk. Mag 11 central star. Dist=2,600 ly. |
| M83 | Hya | ⌀ | Classic face-on spiral. Discovered in 1752 by Lacaille. In attractive star field. |
| γ Leonis | Leo | ◍ | Superb pair of golden-yellow giant stars. Mags 2.2 & 3.5. Orbit=600 years. Sep=4.4". |
| β Lyrae | Lyr | ◉ | Eclipsing binary. Mag varies between 3.3 & 4.3 over 12.940 days. Fainter mag 7.2 blue star. |
| M57 | Lyr | ✧ | Ring Nebula. Magnificent object. Smoke-ring shape. Dist=4,100 ly. |
| M16 | Ser | □ | Eagle Nebula. Requires a telescope of large aperture. Dist=8,150 ly. |
| M81 | UMa | ⌀ | Beautiful spiral galaxy visible with binoculars. Easy to see in a telescope. |
| M82 | UMa | ⌀ | Close to M81 but much fainter and smaller. |
| M104 | Vir | ⌀ | Sombrero Galaxy. Almost edge-on spiral galaxy. Protruding central core. |
| γ Virginis | Vir | ◍ | Superb pair of mag 3.5 yellow-white stars. Orbit=169 years. At their closest in 2005. |
| M27 | Vul | ✧ | Dumbbell Nebula. Large, twin-lobed shape. Most spectacular planetary. Dist=975 ly. |

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